OHS18691

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MDL INFORMATION SYSTEMS, INC.
1281 Murfreesboro Road, Suite 300
Nashville, TN 37217-2423
1-615-366-2000

EMERGENCY TELEPHONE NUMBER:
1-800-424-9300 (NORTH AMERICA)
1-703-527-3887 (INTERNATIONAL)

SUBSTANCE: PHOSPHORIC ACID, LIQUID

TRADE NAMES/SYNONYMS:
WHITE PHOSPHORIC ACID; PHOSPHORIC ACID; ORTHO-PHOSPHORIC ACID; PHOSPHORIC ACID, 85%; UN 1805; H3O4P; OHS18691; RTECS TB6300000

CHEMICAL FAMILY: acids, inorganic

CREATION DATE: Nov 30 1984
REVISION DATE: Dec 11 2001

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: PHOSPHORIC ACID, SOLID
CAS NUMBER: 7664-38-2
EC NUMBER (EINECS): 231-633-2
PERCENTAGE: 85.0

COMPONENT: WATER
CAS NUMBER: 7732-18-5
EC NUMBER (EINECS): 231-791-2
PERCENTAGE: 15.0

SECTION 3 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=1

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: liquid
ODOR: odorless
MAJOR HEALTH HAZARDS: respiratory tract burns, skin burns, eye burns, mucous membrane burns

PHYSICAL HAZARDS: May react on contact with water.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: burns
LONG TERM EXPOSURE: burns
SKIN CONTACT:
SHORT TERM EXPOSURE: burns
LONG TERM EXPOSURE: burns
EYE CONTACT:
SHORT TERM EXPOSURE: burns
LONG TERM EXPOSURE: burns
INGESTION:
SHORT TERM EXPOSURE: burns
LONG TERM EXPOSURE: burns

CARCINOGEN STATUS:
OSHA: No
NTP: No
IARC: No

SECTION 4 FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing and shoes before reuse. Destroy contaminated shoes.

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. Avoid gastric lavage or emesis.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical, regular foam, water

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT: No data available.

SECTION 6 ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

WATER RELEASE:
Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Collect spilled material using mechanical equipment. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Add an oxidizing agent. Collect spilled material using mechanical equipment.

OCCUPATIONAL RELEASE:
Do not touch spilled material. Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Small dry spills: Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

SECTION 7 HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store with acids. See original container for storage recommendations. Keep separated from incompatible substances.

HANDLING: Handle as a corrosive liquid. When mixing, slowly add to water to minimize heat generation and spattering. Keep emergency spill kit near storage and use areas.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
PHOSPHORIC ACID, SOLID:
PHOSPHORIC ACID:
1 mg/m3 OSHA TWA
3 mg/m3 OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
1 mg/m3 ACGIH TWA
3 mg/m3 ACGIH STEL
1 mg/m3 NIOSH recommended TWA 10 hour(s)
3 mg/m3 NIOSH recommended STEL
2 mg/m3 EC MAK STEL
1 mg/m3 EC MAK TWA
2 mg/m3 UK OES STEL

MEASUREMENT METHOD: Silica gel tube (with special coating); Sodium bicarbonate/Sodium carbonate; Ion chromatography; NIOSH IV # 7903, Inorganic Acids

VENTILATION: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
Any powered, air-purifying respirator with a full facepiece and organic vapor and acid gas cartridge(s).
Any chemical cartridge respirator with a full facepiece and organic vapor

and acid gas cartridge(s).
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Any self-contained breathing apparatus with a full facepiece.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
TEXTURE: viscous
ODOR: odorless
MOLECULAR WEIGHT: 98.00
MOLECULAR FORMULA: H3-P-O4
BOILING POINT: 316 F (158 C)
FREEZING POINT: 70 F (21 C)
VAPOR PRESSURE: 2.2 mmHg @ 21 C
VAPOR DENSITY: Not available
SPECIFIC GRAVITY (water=1): 1.685
WATER SOLUBILITY: soluble
PH: 1.5 (0.1 N solution)
VOLATILITY: Not available
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not available
VISCOSITY: 28 cP @ 20 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: May react on contact with water.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition.
May ignite or explode on contact with combustible materials.

INCOMPATIBILITIES: bases, metals, combustible materials, metal salts

PHOSPHORIC ACID:
BASES: Violent reaction.
CHLORIDES + STAINLESS STEEL: Reacts with liberation of explosive hydrogen gas.
FERROUS METALS AND ALLOYS: Very corrosive, expecially when heated.

GRANITE: Attacked by hot concentrated acid.
METALS: Reacts with liberation of explosive hydrogen gas.
NITROMETHANE: Forms detonable mixture.
PLASTICS, RUBBER, COATINGS: May be attacked.
PORCELAIN: Attacked by hot concentrated acid.
SODIUM TETRAHYDROBORATE: Generates heat and may be explosive on rapid mixing.

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of phosphorus

POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

PHOSPHORIC ACID, LIQUID:
IRRITATION DATA:
595 mg/24 hour(s) skin-rabbit severe; 119 mg eyes-rabbit severe
TOXICITY DATA:
220 mg/kg unreported-man LDLo; 1530 mg/kg oral-rat LD50; >850 mg/m3/1 hour(s) inhalation-rat LC50; 2740 mg/kg skin-rabbit LD50
LOCAL EFFECTS:
Corrosive: inhalation, skin, eye, ingestion
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: dermal absorption

PHOSPHORIC ACID, SOLID:
IRRITATION DATA:
595 mg/24 hour(s) skin-rabbit severe; 119 mg eyes-rabbit severe
TOXICITY DATA:
220 mg/kg unreported-man LDLo; 1530 mg/kg oral-rat LD50; >850 mg/m3/1 hour(s) inhalation-rat LC50; 2740 mg/kg skin-rabbit LD50
LOCAL EFFECTS:
Corrosive: inhalation, skin, eye, ingestion
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: dermal absorption
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory disorders, skin disorders and allergies

HEALTH EFFECTS:
INHALATION:
PHOSPHORIC ACID: See information on acidic corrosives.

ACUTE EXPOSURE:

ACIDIC CORROSIVES: May cause respiratory tract irritation with coughing, choking, and possibly burns of the mucous membranes. Other initial symptoms may include dizziness, headache, nausea and weakness. In some cases pulmonary edema may develop, either immediately in severe cases, or more likely after a latent period of 5-72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, and cyanosis. Physical findings may include hypotension, weak, rapid pulse and moist rales. Recovery may be prolonged and relapses are possible. In severe exposures, death due to anoxia may occur within a few hours after onset of pulmonary edema symptoms or following a relapse.

CHRONIC EXPOSURE:
ACIDIC CORROSIVES: Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause erosion of the teeth, inflammatory and ulcerative changes in the mouth, and possibly jaw necrosis. Bronchial irritation with cough and frequent attacks of bronchial pneumonia may occur. Gastrointestinal disturbances are also possible.

SKIN CONTACT:
PHOSPHORIC ACID: Animal studies indicate that skin absorption may occur. See information on acidic corrosives.

ACUTE EXPOSURE:
ACIDIC CORROSIVES: Direct contact may cause severe pain, burns and possibly brownish or yellowish stains. Burns may be deep with sharp edges and heal slowly with scar tissue formation.

CHRONIC EXPOSURE:
ACIDIC CORROSIVES: Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may result in dermatitis or effects similar to acute exposure.

EYE CONTACT:
PHOSPHORIC ACID: Direct contact with a 0.16m solution buffered to pH 2.5 caused a moderate, brief stinging sensation, but no injury when applied as a single drop in human eyes. When adjusted to pH 3.4, a drop of the solution caused no discomfort. Irrigation of rabbit eyes for 5 minutes with pH 3.8 solution caused slight transient epithelial edema and conjunctival hyperemia, but the eye was normal within 24 hours. When injected into the corneal stroma or applied to the cornea after removal of the epithelium, it caused detectable injury below pH 5.5. Eye burns may result from splashes of concentrated solutions. See information on acidic corrosives.

ACUTE EXPOSURE:
ACIDIC CORROSIVES: Direct contact may cause pain, lacrimation, photophobia and burns. In mild burns, the epithelium regenerates rapidly and the eye recovers completely. In severe cases, the extent of injury may not be

fully apparent for several weeks. Ultimately, the whole cornea may become deeply vascularized and opaque resulting in blindness. In the worst cases, the eye may be totally destroyed.

CHRONIC EXPOSURE:
ACIDIC CORROSIVES: Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may cause conjunctivitis or effects as in acute exposure.

INGESTION:
PHOSPHORIC ACID: See information on acidic corrosives.

ACUTE EXPOSURE:
ACIDIC CORROSIVES: May cause circumoral burns with discoloration and corrosion of the mucous membranes of the mouth, throat and esophagus. There may be immediate pain and difficulty or inability to swallow or speak. Epiglottal edema may result in respiratory distress and possibly asphyxia. Marked thirst, nausea, vomiting and diarrhea may occur. Depending on the area and degree of corrosion, the vomitus may contain fresh or dark blood and large shreds of mucosa. Shock may occur with marked hypotension, weak and rapid pulse, shallow respiration, and clammy skin. Circulatory collapse may develop and if uncorrected, lead to renal failure. In severe cases, gastric and, to a lesser degree, esophageal perforation may occur with peritonitis accompanied by fever and abdominal rigidity. Esophageal, gastric or pyloric stricture may occur within a few weeks, or may be delayed for months or even years. Death may result within a short time from asphyxia, circulatory collapse or aspiration of even minute amounts. If death is delayed, it may be due to peritonitis, severe nephritis or pneumonia. Coma and convulsions sometimes occur terminally.

CHRONIC EXPOSURE:
ACIDIC CORROSIVES: Depending on the concentration, repeated ingestion may result in inflammatory and ulcerative changes in the mucous membranes of the mouth and other effects as in acute ingestion.

SECTION 12 ECOLOGICAL INFORMATION

Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

SECTION 14 TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
- PROPER SHIPPING NAME: Phosphoric acid
- ID NUMBER: UN1805
- HAZARD CLASS OR DIVISION: 8
- PACKING GROUP: III

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
- SHIPPING NAME: Phosphoric acid
- ID NUMBER: UN1805
- CLASSIFICATION: 8, 9.2
- PACKING GROUP: III

LAND TRANSPORT ADR/RID:
- PROPER SHIPPING NAME: Phosphoric acid, liquid/PHOSPHORIC ACID, LIQUID
- UN NUMBER: UN1805
- ADR/RID CLASS: 8
- CLASSIFICATION CODE: C1
- PACKING GROUP: III

AIR TRANSPORT IATA/ICAO:
- PROPER SHIPPING NAME: Phosphoric acid, liquid
- UN/ID NUMBER: UN1805
- IATA/ICAO CLASS: 8
- PACKING GROUP: III

MARITIME TRANSPORT IMDG:
- PROPER SHIPPING NAME: Phosphoric acid, liquid
- UN NUMBER: UN1805
- IMDG CLASS: 8
- PACKING GROUP: III

SECTION 15 REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):

PHOSPHORIC ACID: 5000 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):

Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):

Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: No
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:
EC CLASSIFICATION (ASSIGNED):
C Corrosive

EC Classification may be inconsistent with independently-researched data.

DANGER/HAZARD SYMBOL:
C Corrosive

EC RISK AND SAFETY PHRASES:

R 34	Causes burns.
S 1/2	Keep locked-up and out of reach of children.
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

CONCENTRATION LIMITS:

C>=25%	C	R 34
10%<=C<25%	Xi	R 36/38

GERMAN REGULATIONS:
WATER HAZARD CLASS (WGK):
STATE OF CLASSIFICATION: VwVwS
CLASSIFICATION UNDER HAZARD TO WATER: 1

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

SECTION 16 OTHER INFORMATION